REMARKS

Information Disclosure Statement

In response to the Examiner's objection to the form of citation number 26 in the information disclosure statement filed June 1, 2004, Applicants submit herewith a copy of the relevant portion of that text. (Solomons G.T., Organic Chemistry (Fifth Edition)(New York: John wiley & Sons, Inc.), p. 65-6, 1992.) Applicants do not believe this reference is material to patentability and so have not submitted it in a supplemental information disclosure statement; however, if the Examiner disagrees, it may be included it in the record by means available to the Examiner.

Rejections Under 35 U.S.C. § 112

The Examiner has rejected claims 30-48 for lack of enablement under 35 U.S.C. 112, first paragraph.

Applicants have amended claim 30 to claim compounds wherein Z = $-CH_2-$, $-CH_2CH_2-$, - -NH-, and -CH=CH-. The Examiner has already indicated that the specification enables compounds wherein Z = $-CH_2-$ or -CH=CH-. *See* Office Action at 5. Applicants submit that Jones et al. demonstrates that compounds wherein Z = $-CH_2CH_2-$ or -NH- are also enabled. *See* Jones, P.B. ; Parrish, N. M.; Houston, T. A.; Stapon, A.; Bansal, N. P; Dick, J. D.; Townsend, C.A. "A New Class of Antituberculosis Agents" J. Med. Chem 2000, 43, 3304-3314, Table 1. Specifically, Compounds 13 and 28-31 in Table 1 of Jones et al. disclose the $-CH_2CH_2-$ and - -NH- bridges. These compounds are also shown to have anti-tuberculosis activities. (*See* Table 1 showing activities at > 25 μg/ml compared to, *e.g.*, pyrizinamide activity at 100 μg/ml and compound 15 activity at > 50 μg/ml.) Accordingly, the claimed compounds wherein Z = $-CH_2-$, $-CH_2CH_2-$, -NH-, and -CH=CH- are enabled.

Applicants have also amended the claims to limit "microbial based infections" to "mycobacterial infections." Applicants respectfully submit that the specification enables the treatment of mycobacterial infections with the claimed compounds by demonstration of the effect of numerous homologous compounds on numerous different *Mycobacterium* sp.

Accordingly, Applicants respectfully submit that in view of the foregoing amendments and remarks, the pending claims are in condition for allowance. Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

Hunton & Williams, L.L.P.

Dated: November 22, 2005

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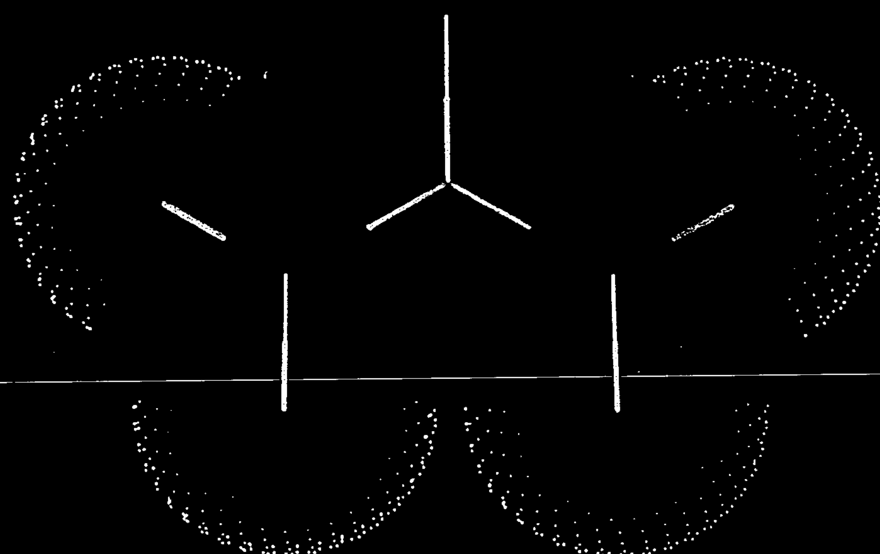
Attached:

Solomons G.T., Organic Chemistry (Fifth Edition)(New York: John wiley & Sons, Inc.), p. 65-6, 1992.

SOLOMONS



ORGANIC CHEMISTRY

FIFTH EDITION

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A functional group is the part of a molecule where most of its chemical reactions occur. It is the part that effectively determines the compound's chemical properties (and many of its physical properties as well). The functional group of an alkene, for example, is its carbon–carbon double bond. When we study the reactions of alkenes in greater detail in Chapter 9, we shall find that most of the chemical reactions of alkenes are the chemical reactions of the carbon–carbon double bond.

The functional group of an alkyne is its carbon–carbon triple bond. Alkanes do not have a functional group. Their molecules have carbon–carbon single bonds and carbon–hydrogen bonds, but these bonds are present in molecules of almost all organic molecules, and C—C and C—H bonds are, in general, much less reactive than common functional groups.

2.8A ALKYL GROUPS AND THE SYMBOL R

Alkyl groups are the groups that we identify for purposes of naming compounds. They are groups that would be obtained by removing a hydrogen atom from an alkane:

Alkane	**Alkyl Group**	**Abbreviation**
CH_4 **Methane**	$CH_3—$ **Methyl group**	Me—
CH_3CH_3 **Ethane**	$CH_3CH_2—$ or $C_2H_5—$ **Ethyl group**	Et—
$CH_3CH_2CH_3$ **Propane**	$CH_3CH_2CH_2—$ **Propyl group**	Pr—
$CH_3CH_2CH_3$ **Propane**	$CH_3-\underset{\vert}{C}H-CH_3$ or $CH_3\overset{CH_3}{\overset{\vert}{C}}H—$ **Isopropyl group**	*i*-Pr—

While only one alkyl group can be derived from methane and ethane (the **methyl** and **ethyl** groups, respectively), two groups can be derived from propane. Removal of a hydrogen from one of the end carbon atoms gives a group that is called the **propyl** group; removal of a hydrogen from the middle carbon atom gives a group that is called the **isopropyl** group. The names and structures of these groups are used so frequently in organic chemistry that you should learn them now.

We can simplify much of our future discussion if, at this point, we introduce a symbol that is widely used in designating general structures of organic molecules: The symbol R. ***R is used as a general symbol to represent any alkyl group.*** For example, R might be a methyl group, an ethyl group, a propyl group, or an isopropyl group.

$$\left.\begin{array}{ll} CH_3— & \text{Methyl} \\ CH_3CH_2— & \text{Ethyl} \\ CH_3CH_2CH_2— & \text{Propyl} \\ CH_3\underset{\vert}{C}HCH_3 & \text{Isopropyl} \end{array}\right\} \begin{array}{c}\textbf{All of}\\ \textbf{these}\\ \textbf{can be}\\ \textbf{designated}\end{array} \quad \textbf{by R}$$

Thus, the general formula for an alkane is R—H.

Using R, we can write also a general formula for any monosubstituted alkene (i.e., one having only one alkyl group attached to a doubly bonded carbon) such as propene. We write the formula in the following way:

$$R{-}CH{=}CH_2$$

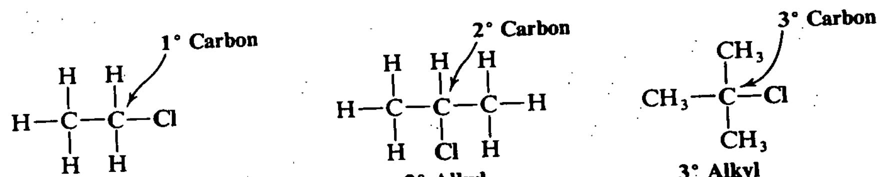
Similarly, we can write a general formula for any monosubstituted alkyne (i.e., one with only one alkyl group attached to the triply bonded carbon atom) such as propyne:

$$R{-}C{\equiv}CH$$

2.9 ALKYL HALIDES OR HALOALKANES

Alkyl halides are compounds in which a halogen atom (fluorine, chlorine, bromine, or iodine) replaces a hydrogen atom of an alkane. For example, CH_3Cl and CH_3CH_2Br are alkyl halides. Alkyl halides are also called **haloalkanes.**

Alkyl halides are classified as being primary (1°), secondary (2°), or tertiary (3°).* ***This classification is based on the carbon atom to which the halogen is directly attached.*** If the carbon *atom* that bears the halogen is attached to only one other carbon, the carbon atom is said to be a **primary carbon atom** and the alkyl halide is classified as a **primary alkyl halide.** If the carbon that bears the halogen is itself attached to two other carbon atoms, then the carbon is a **secondary carbon** and the alkyl halide is a **secondary alkyl halide.** If the carbon that bears the halogen is attached to three other carbon atoms, then the carbon is a **tertiary carbon** and the alkyl halide is a **tertiary alkyl halide.** Examples of primary, secondary, and tertiary alkyl halides are the following:



1° Alkyl chloride — **2° Alkyl chloride** — **3° Alkyl chloride**

Problem 2.4

Using X to represent any halogen, write the general formula (a) for a primary alkyl halide, (b) for a secondary alkyl halide, (c) for a tertiary alkyl halide, and (d) for *any* alkyl halide regardless of its classification.

Problem 2.5

Although we shall discuss the naming of organic compounds later when we consider the individual families in detail, one method of naming alkyl halides is so straightforward that it is worth describing here. We simply give the name of

*Although we use the symbols 1°, 2°, 3°, we do not *say* first degree, second degree, and third degree; we say *primary, secondary,* and *tertiary.*